



\*\*FILE\*\*ID\*\*MTHMFLOOR

C 1

MTF  
1-0

MM	MM	TTTTTTTTTT	HH	HH	HH	FFFFFF	LL	000000	000000	RRRRRRRR
MM	MM	TTTTTTTTTT	HH	HH	HH	FFFFFF	LL	000000	000000	RRRRRRRR
MMMM	MMMM	TT	HH	HH	HH	FF	LL	00	00	00 RR RR
MMMM	MMMM	TT	HH	HH	HH	FF	LL	00	00	00 RR RR
MM MM	MM	TT	HH	HH	HH	FF	LL	00	00	00 RR RR
MM MM	MM	TT	HH	HH	HH	FF	LL	00	00	00 RR RR
MM MM	MM	TT	HHHHHHHHHH	HHHHHHHHHH	HHHHHHHHHH	FFFFFF	LL	00	00	00 RRRRRRRR
MM MM	MM	TT	HHHHHHHHHH	HHHHHHHHHH	HHHHHHHHHH	FFFFFF	LL	00	00	00 RRRRRRRR
MM MM	MM	TT	HH	HH	HH	FF	LL	00	00	00 RR RR
MM MM	MM	TT	HH	HH	HH	FF	LL	00	00	00 RR RR
MM MM	MM	TT	HH	HH	HH	FF	LL	00	00	00 RR RR
MM MM	MM	TT	HH	HH	HH	FF	LL	00	00	00 RR RR
MM MM	MM	TT	HH	HH	HH	FF	LL	000000	000000	RR RR
MM MM	MM	TT	HH	HH	HH	FF	LL	000000	000000	RR RR
MM MM	MM	TT	HH	HH	HH	FF	LL	000000	000000	RR RR
MM MM	MM	TT	HH	HH	HH	FF	LL	000000	000000	RR RR

LL	IIIIII	SSSSSSSS
LL	IIIIII	SSSSSSSS
LL	II	SS
LL	II	SSSSSS
LL	II	SSSSSS
LL	II	SS
LL	IIIIII	SSSSSSSS
LL	IIIIII	SSSSSSSS

(2)	57	DECLARATIONS
(3)	87	MTH\$HFLOR - greatest integer H_floating routine
(4)	146	MTH\$HFLOR_R7 - greatest integer H_floating routine

```
0000 1 .TITLE MTH$HFLOOR - Greatest integer routine for H_floating
0000 2 .IDENT /1-002/ : File: MTHHFLOOR.MAR EDIT: RH1002
0000 3
0000 4
0000 5 :*****+
0000 6 :*
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0000 24
0000 25
0000 26 :*****+
0000 27
0000 28
0000 29 :++
0000 30 : FACILITY: Math Library
0000 31
0000 32 : ABSTRACT:
0000 33
0000 34 : This routine finds the largest integer less than the input
0000 35 : value, i.e. it truncates toward negative infinity
0000 36 : for data type H_floating.
0000 37
0000 38 : ENVIRONMENT: User Mode, AST Reentrant
0000 39
0000 40 :--+
0000 41 : Author: John Sauter, Creation date: 27-JUL-1979
0000 42
0000 43 : MODIFIED BY:
0000 44
0000 45 : VERSION 00
0000 46 : 1-001 - Original, from MTH$GFLOOR.
0000 47 : 1-002 - CALL entry was modified to return the result in the address
0000 48 : specified by the leftmost argument in order to conform to the
0000 49 : calling standard for return values larger than 64 bits. The
0000 50 : original version returned the results in R0-R3.
0000 51 : JSB entry was modified to correct typos: The last two operands
0000 52 : of the EMODH instruction and the operand of the TSTH instruction
0000 53 : were changed from R2 to R4.
0000 54 : Comments were changed to eliminate an erroneous calling sequence.
0000 55 : RNH 9-DEC-1980
```

```
0000 57 .SBttl DECLARATIONS
0000 58 ; INCLUDE FILES:
0000 59 ;
0000 60 ;
0000 61 ;
0000 62 ;
0000 63 ; EXTERNAL DECLARATIONS:
0000 64 ;
0000 65 .DSABL GBL ; Prevent undeclared
0000 66 ; symbols from being
0000 67 ; automatically global.
0000 68 ;
0000 69 ; MACROS:
0000 70 ;
0000 71 ;
0000 72 ; EQUATED SYMBOLS:
0000 73 ;
0000 74 ;
0000 75 ;
0000 76 ;
0000 77 ; OWN STORAGE:
0000 78 ;
0000 79 ;
0000 80 ;
0000 81 ; PSECT DECLARATIONS:
0000 82 ;
00000000 83 .PSECT _MTH$CODE PIC, USR, CON, REL, LCL, SHR, -
0000 84 EXE, RD, NOWRT, LONG
0000 85
```

0000 87 .SBTTL MTH\$HFLOOR - greatest integer H\_floating routine  
 0000 88 ++  
 0000 89 : FUNCTIONAL DESCRIPTION:  
 0000 90  
 0000 91 This routine finds the floor by truncating, and then if the  
 0000 92 input value is negative and not an integer subtracting 1.  
 0000 93  
 0000 94 : CALLING SEQUENCE:  
 0000 95  
 0000 96 CALL MTH\$HFLOOR (result\_int.wh.r, input.rh.r)  
 0000 97  
 0000 98 : INPUT PARAMETERS:  
 0000 99  
 00000008 0000 100 input\_addr = 8 ; address of the H\_floating number  
 0000 101 ; to get the floor of  
 0000 102  
 0000 103 : IMPLICIT INPUTS:  
 0000 104  
 0000 105 : NONE  
 0000 106  
 0000 107 : OUTPUT PARAMETERS:  
 0000 108  
 00000004 0000 109 output\_addr = 4  
 0000 110  
 0000 111 : IMPLICIT OUTPUTS:  
 0000 112  
 0000 113 : NONE  
 0000 114  
 0000 115 : FUNCTION VALUE:  
 0000 116 : COMPLETION CODES:  
 0000 117  
 0000 118 : NONE  
 0000 119  
 0000 120 : SIDE EFFECTS:  
 0000 121  
 0000 122 : NONE  
 0000 123  
 0000 124 :--  
 0000 125  
 00FC 0000 126 .ENTRY MTH\$HFLOOR, "M<R2, R3, R4, R5, R6, R7> ; entry point  
 0002 127  
 54 54 08 50 08 BC 70FD 0002 128 MOVH @input\_addr(AP), R0 : R0/R3 = input argument  
 50 50 74FD 0007 129 EMODH R0, #0, #1, R4, R4 : R4/R7 = fraction\_part (arg)  
 50 54 62FD 000E 130 SUBH2 R4, R0 : R0/R3 = integer\_part (arg)  
 0012 131  
 09 14 0012 132 BGTR 40\$ : if > 0, have correct answer  
 0014 133  
 54 73FD 0014 134 TSTH R4 : look at fraction part  
 04 18 0017 135 BGEQ 40\$ : if > 0 then 0 < input < 1 and  
 0019 136 : we have the correct answer  
 0019 137 : if = 0 then input was integer  
 0019 138 : and we have correct answer  
 0019 139  
 50 08 62FD 0019 140 SUBH2 #1,R0 : subtract 1 from truncated  
 001D 141 : negative non-integer  
 001D 142  
 04 BC 50 70FD 001D 143 40\$: MOVH R0, @output\_addr(AP) : move result to output address

MTHSHFLOOR  
1-002

H 1  
- Greatest integer routine for H\_floatin 16-SEP-1984 01:36:01 VAX/VMS Macro V04-00  
MTHSHFLOOR - greatest integer H\_floatin 6-SEP-1984 11:24:55 [MTHRTL.SRC]MTHHFLOOR.MAR;1 Page 4  
04 0022 144 RET

MTH  
2-0

0023 146 .SBTTL MTH\$HFLOOR\_R7 - greatest integer H\_floating routine  
 0023 147 ++  
 0023 148 FUNCTIONAL DESCRIPTION:  
 0023 149  
 0023 150 This is the JSB entry point to MTH\$HFLOOR.  
 0023 151  
 0023 152 CALLING SEQUENCE:  
 0023 153  
 0023 154 JSB MTH\$HFLOOR\_R7  
 0023 155  
 0023 156 INPUT PARAMETERS:  
 0023 157  
 0023 158 R0 through R3 contain the input value  
 0023 159  
 0023 160 IMPLICIT INPUTS:  
 0023 161  
 0023 162 NONE  
 0023 163  
 0023 164 OUTPUT PARAMETERS:  
 0023 165  
 0023 166 R0 through R3 contain the result value  
 0023 167  
 0023 168 IMPLICIT OUTPUTS:  
 0023 169  
 0023 170 NONE  
 0023 171  
 0023 172 FUNCTION VALUE:  
 0023 173 COMPLETION CODES:  
 0023 174  
 0023 175 NONE  
 0023 176  
 0023 177 SIDE EFFECTS:  
 0023 178  
 0023 179 NONE  
 0023 180  
 0023 181 ;--  
 0023 182  
 0023 183 MTH\$HFLOOR\_R7:: : entry point  
 0023 184  
 54 54 08 00 50 74FD 0023 185 EMODH R0, #0, #1, R4, R4 : R4/R7 = fraction\_part (arg)  
 50 54 62FD 002A 186 SUBH2 R4, R0 : R0/R3 = integer\_part (arg)  
 002E 187  
 09 14 002E 188 BGTR 40\$ : if > 0, have correct answer  
 0030 189  
 54 73FD 0030 190 TSTH R4 : look at fraction part  
 04 18 0033 191 BGEQ 40\$ : if > 0 then 0 < input < 1 and  
 0035 192 : we have the correct answer  
 0035 193 : if = 0 then input was integer  
 0035 194 : and we have correct answer  
 0035 195  
 50 08 62FD 0035 196 SUBH2 #1,R0 : subtract 1 from truncated  
 0039 197 : negative non-integer  
 0039 198  
 05 0039 199 40\$: RSB  
 003A 200  
 003A 201 .END

INPUT\_ADDR = 00000008  
 MTH\$HFLOOR = 00000000 RG 01  
 MTH\$HFLOOR\_R7 = 00000023 RG 01  
 OUTPUT\_ADDR = 00000004

+-----+  
 ! Psect synopsis !  
 +-----+

## PSECT name

	Allocation	PSECT No.	Attributes
• ABS	00000000 ( 0.) 00 ( 0.)	NOPIC USR CON	ABS LCL NOSHR NOEXE NORD NOWRT NOVEC BYTE
_MTH\$CODE	0000003A ( 58.) 01 ( 1.)	PIC USR CON	REL LCL SHR EXE RD NOWRT NOVEC LONG

+-----+  
 ! Performance indicators !  
 +-----+

## Phase

	Page faults	CPU Time	Elapsed Time
Initialization	31	00:00:00.13	00:00:01.98
Command processing	128	00:00:00.51	00:00:07.16
Pass 1	72	00:00:00.54	00:00:01.82
Symbol table sort	0	00:00:00.00	00:00:00.00
Pass 2	50	00:00:00.47	00:00:02.05
Symbol table output	2	00:00:00.00	00:00:00.01
Psect synopsis output	2	00:00:00.02	00:00:00.02
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	287	00:00:01.69	00:00:13.07

The working set limit was 900 pages.

2169 bytes (5 pages) of virtual memory were used to buffer the intermediate code.

There were 10 pages of symbol table space allocated to hold 4 non-local and 2 local symbols.

201 source lines were read in Pass 1, producing 11 object records in Pass 2.

0 pages of virtual memory were used to define 0 macros.

+-----+  
 ! Macro library statistics !  
 +-----+

## Macro library name

-\$255\$DUA28:[SYSLIB]STARLET.MLB;2

## Macros defined

0

0 GETS were required to define 0 macros.

There were no errors, warnings or information messages.

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS\$:\_MTHHFLOOR/OBJ=OBJ\$:\_MTHHFLOOR MSRC\$:\_MTHHFLOOR/UPDATE=(ENHS:\_MTHHFLOOR)

0262 AH-BT13A-SE  
VAX/VMS V4.0

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